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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,948	04/19/2005	Masaki Tamura	SON-3095	9001

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RADER FISHMAN & GRAUER PLLC
LION BUILDING
1233 20TH STREET N.W., SUITE 501
WASHINGTON, DC 20036

EXAMINER	
FENWICK, WARREN K	
ART UNIT	PAPER NUMBER
2809	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,948	TAMURA, MASAKI	
	Examiner	Art Unit	
	Warren K. Fenwick	2809	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6, 9-14* is/are rejected.

7)☐ Claim(s) *7-8,15-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04-19-05 and 11-28-06.*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDS) submitted on 04/19/2005 and 11/28/2006 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the Information Disclosure Statements are being considered by the examiner.

Foreign Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. The specification is objected to because Tables 1- 4, which are present in the Japanese PCT application and referenced in the specification, are not present within the specification. Appropriate correction is required. Se MPEP 1893.01(d).

4. A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed

within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. **Claims 1-2 and 5** are rejected under 35 U.S.C. 102(e) as being anticipated by Hagimori et al. (U. S. Patent # 6,754,446 B2).

7. Regarding **claim 1**, Hagimori et al. disclose a zoom lens of the type having a plurality of lens groups (Figure 7, elements Gr1-5) and varying in power in response to variation in intervals between the lens groups (column 4, lines 29-32), which comprises a reflecting member (Figure 7, element PR) to bend the optical axis passing through the lens groups and a last lens group, (counted from the object side), which is composed of a negative lens group and a positive lens group, with an air layer interposed between them (arranged sequentially from the object side) (column 7, lines 7-31).

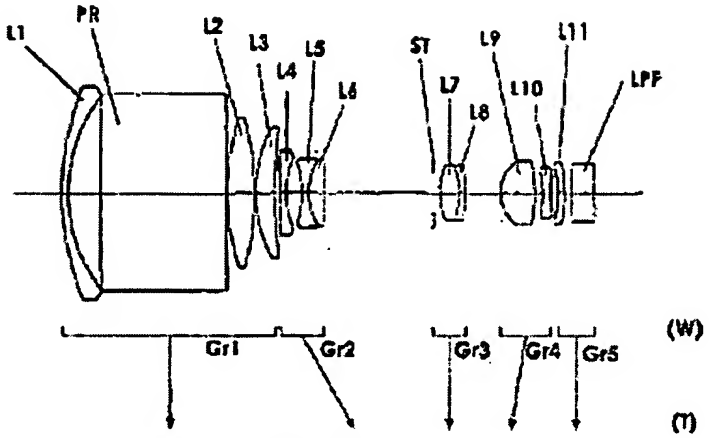

FIG. 7

8. Regarding **claim 2**, Hagimori et al. disclose the zoom lens, wherein the lens groups are constructed such that the first lens group (Figure 7, element Gr1) (counted from the object side) is stationary and contains said reflecting member (column 7, lines 7-11 and Figure 7, element PR).

9. Regarding **claim 5**, Hagimori et al. disclose the zoom, wherein the lens groups are composed of five lens groups (Figure 7, elements Gr1-5).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

a. Determining the scope and contents of the prior art.
b. Ascertaining the differences between the prior art and the claims at issue.
c. Resolving the level of ordinary skill in the pertinent art.
d. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims **3-4, 6, 9-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagimori et al. (U. S. Patent # 6,754,446 B2) as applied to claims 1, 4, 9, and 12 above in view of Kawasaki (U. S. Patent # 6,807,014 B2).

13. Regarding **claim 3**, Hagimori et al. disclose a zoom lens of the type having a plurality of lens groups (Figure 7, elements Gr1-5) and varying in power in response to variation in intervals between the lens groups (column 4, lines 29-32), which comprises a reflecting member (Figure 7, element PR) to bend the optical axis passing through the lens groups and a last lens group, (counted from the object side), which is composed of a negative lens group and a positive lens group, with an air layer interposed between them (arranged sequentially from the object side) (column 7, lines 7-31). However, Hagimori et al. does not disclose the zoom lens, wherein the lens groups are constructed such that last lens group (counted from the object side), has a negative refracting power.

14. Kawasaki teaches a zoom lens, wherein the lens groups are constructed such that last (fifth) lens unit (counted from the object side) has a positive or negative refracting power (column 8, lines 37-44).

15. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a zoom lens and imaging device as disclosed by

Hagimori et al., the lens groups are constructed such that last lens group (counted from the object side) has a positive or negative refracting power, as taught by Kawasaki, to configure a zoom lens and imaging device with enhanced photographic attributes to produce high quality images having optimum chrominance, contrast, and sharpness for digital still cameras and digital video cameras.

16. Regarding **claim 4**, Hagimori et al. disclose a zoom lens of the type having a plurality of lens groups and varying in power in response to variation in intervals between the lens groups (Figure 7, elements Gr1-5). However, Hagimori et al. does not disclose that the last (fifth) lens group comprises a last lens group (counted from the object side), which is composed of a negative lens group and a positive lens group, with an air layer interposed between them (arranged sequentially from the object side).

17. Kawasaki teaches the last (fifth) lens group (counted from the object side), which is composed of a negative lens group and a positive lens group (column 8, lines 5-10), with an air layer interposed between them (arranged sequentially from the object side) (column 8, lines 10-15).

18. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a zoom lens and imaging device as disclosed by Hagimori et al., wherein the last (fifth) lens group (counted from the object side) comprises a negative lens group and a positive lens group, with an air layer interposed between them (arranged sequentially from the object side), as taught by Kawasaki, to configure a zoom lens and imaging device with enhanced photographic attributes to

produce high quality images having optimum chrominance, contrast, and sharpness for digital still cameras and digital video cameras.

19. Regarding **claim 6**, Hagimori et al. disclose the zoom, wherein the lens groups are composed of five lens groups (Figure 7, elements Gr1-5).

20. Regarding **claim 9**, Hagimori et al. disclose an imaging device equipped with a zoom lens having a plurality of lens groups (Figure 7, elements Gr1-5) and varying in power in response to variation in intervals between the lens equipped with an imaging element to convert the optical images formed by said zoom lens into electrical signals (column 1, lines 11-22), wherein said zoom lens comprises a reflecting member (Figure 7, element PR) to bend the optical axis and a last lens group (counted from the object side). However, Hagimori et al. does not disclose that the last (fifth) lens group comprises a negative lens group and a positive lens group, with an air layer interposed between them (arranged sequentially from the object side).

21. Kawasaki teaches the last (fifth) lens group (counted from the object side), which is composed of a negative lens group and a positive lens group (column 8, lines 5-10), with an air layer interposed between them (arranged sequentially from the object side) (column 8, lines 10-15).

22. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a zoom lens and imaging device as disclosed by Hagimori et al., wherein the last (fifth) lens group (counted from the object side) comprises a negative lens group and a positive lens group, with an air layer interposed between them (arranged sequentially from the object side), as taught by Kawasaki, to

configure a zoom lens and imaging device with enhanced photographic attributes to produce high quality images having optimum chrominance, contrast, and sharpness for digital still cameras and digital video cameras.

23. Regarding **claim 10**, Hagimori et al. disclose the imaging device, wherein the lens groups are constructed such that the first lens group (counted from the object side) is stationary and contains said reflecting member (column 7, lines 7-11).

24. Regarding **claim 11**, Hagimori et al. disclose the imaging device, wherein the lens groups are constructed such that last lens group (counted from the object side) has a negative refracting power.

25. Regarding **claim 12**, Hagimori et al. disclose an imaging device equipped with a zoom lens having a plurality of lens groups (Figure 7, elements Gr1-5) and varying in power in response to variation in intervals between the lens groups and also equipped with an imaging element to convert the optical images formed by said zoom lens into electrical signals (column 1, lines 11-22), wherein said zoom lens comprises a last lens group (counted from the object side). However, Hagimori et al. does not disclose that the last (fifth) lens group comprises a negative lens group and a positive lens group, with an air layer interposed between them (arranged sequentially from the object side).

26. Kawasaki teaches the last (fifth) lens group (counted from the object side), which is composed of a negative lens group and a positive lens group (column 8, lines 5-10), with an air layer interposed between them (arranged sequentially from the object side) (column 8, lines 10-15).

27. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a zoom lens and imaging device as disclosed by Hagimori et al., wherein the last (fifth) lens group (counted from the object side) comprises a negative lens group and a positive lens group, with an air layer interposed between them (arranged sequentially from the object side), as taught by Kawasaki, to configure a zoom lens and imaging device with enhanced photographic attributes to produce high quality images having optimum chrominance, contrast, and sharpness for digital still cameras and digital video cameras.

28. Regarding **claims 13 and 14**, Hagimori et al. disclose the imaging device, where\-in the lens groups are composed of five lens groups (Figure 7, elements Gr1-5).

Allowable Subject Matter

29. Claims **7-8 and 15-16** are objected to as being dependent upon a rejected base claim, bout would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

30. Regarding **claims 7 and 8**, the prior art of record neither shows nor suggests a zoom lens, wherein the negative lens group of the last lens group satisfies the condition defined by the inequality: $0.9 < |fa/fw| < 1.25$, where, fa denotes the focal length of the negative lens group in the last lens group, and fw denotes the focal length at its wide end.

31. Regarding **claims 15 and 16**, the prior art of record neither shows nor suggests an The imaging device, wherein the negative lens group of the last lens group satisfies the condition defined by the inequality: $0.9 < |fa/fw| < 1.25$,

where, fa denotes the focal length of the negative lens group in the last lens group, and fw denotes the focal length at its wide end.

Conclusion

32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art references, made of record and not relied upon, are presented in the following paragraphs.

33. Mihara et al. (U. S. Patent # 7,113,345 B2) disclose a "Zoom Lens, and Electronic Imaging System Using the Same".

34. Wada et al. (U. S. Patent # 6,633,436 B2) disclose an "Optical System, Projection Optical System, Image Projection Apparatus Having It, And Image Pickup Apparatus".

35. Park (U. S. Patent Publication # 2005/0237626 A1) discloses a "High Magnification Zoom Lens System".

36. Nakamura et al. (U. S. Patent # 6,104,432) disclose a "Compact Image Pickup Lens System for a Video Camera".

37. Mihara et al. (U. S. Patent Publication # 2006/0002694 A1) disclose a "Zoom Lens, and Electronic Imaging System Using the Same".

38. Inadome (U. S. Patent # 5,790,317) discloses a "Zoom Lens System".

39. Inadome (U. S. Patent # 5,774,276) discloses a "Zoom Lens System".

40. Inadome (U. S. Patent # 5,751,499) discloses a "Zoom Lens System".

41. Terasawa et al. (U. S. Patent # 6,897,922 B1) disclose a "Projection Optical System and Projection Exposure Apoaratus Using the Same".

42. Hagimori et al. (U. S. Patent Publication # 2001/004683 A1) disclose a "Taking Lens Device".

43. Shirasuna (U. S. Patent # 6,865,027 B2) discloses a "Zoom Lens and Camera Having the Same".

44. Kohno (U. S. Patent # 6,400,515 B1) "Taking Optical System, Image Taking Apparatus and Method for Converting Frame-Format in a Taking Optical System".

45. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Warren K. Fenwick whose telephone number is 571-270-3040. The examiner can normally be reached on Mon - Fri 9A to 5:30P, Eastern Time.

46. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on 571-272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

47. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WKF

PATRICK ASSOUAD
SUPERVISORY PATENT EXAMINER